						SITE ASSESSMENT - Bental	l Centre Car	Park				
Address: Steadfast Road, Kingston, KT1 1TY			Area:	0.77 Ha								
			Site Refere	nce: SA 011				Current Ris	k Summary	,		
						1	F	uvial / Tid	al		Groundwat	er
Current Use				Proposed Use			FZ2	100	% of Site	<25	0	%
				Mixed Use (Residential, Commercial, Business, Leisure). 282 units			FZ3a	14.2	% of Site	25-50	0	%
Mult	ti-Storey Ca	r Park					FZ3b	0	% of Site	50-75	100%	%
				(if 100% residential)		Si	urface Wat	er	>75	0	%	
				·		1 in 30*			Artificial			
Current Vu	Inerability C	Classification		Proposed Vulnerability Classification		1in 100*	0.23	% of Site	Reservoir	Yes	A	
				More Vulnerable		1 in 1000*	2.18	% of Site	Canal	No	A	
Le	ess Vulnerat	ble				Sewer Flooding			Town Centre			
						No. Inc	idents	65	Y/N		Y	
											-	
						FLUVIAL / TIDA	L					
	-	ended) - Riv								1		
Parameter	FZ3b	FZ3a	*FZ3a+CC	Units		ription of Flood Mechanism		Access / E	-			
Speed of inundation	N/A	N/D	N/D	Hrs	 The site is at risk of flooding from the River Thames and Hogsmill River. The River Thames flows northerly, 50m from the 		• Site access / egress routes should be directed towards the				• 'More Vu	ulne
Min. Depth	N/A	0.03	0.154	m						from the west		
Max. Depth	N/A	0.67	1.97	m		ndary of the site. Flooding orginating	eastern edg	ge of the si	te along		Only bas	eme
Max. Velocity	N/A	0.18	0.36	m/s	from the River Thames, inundates the site from the west and covers a small segment of the site. • The predicted flood risk extent for the climate		Skerne Road, where there is a			uses are perm	erm	
Max Flood Level	N/A	6.95	8.27	m AOD			lower risk o	lower risk of flooding.Safe refuge areas should be provided on site to account for			 Self-contain 	
Max Ground Level	N/A	5.5	5.5	m AOD			 Safe refug 				permitted	in F
Min Ground Level	N/A	8.22	8.22	m AOD			provided or				requirement n	
Max Flood Hazard	N/A	1.24	2.17	N/A	• The site is also at risk from the Hogsmill River in the			the predicted impact of climate			 See SFRA Lev 	
Duration of Flood	N/A	N/D	N/D	Hrs	Irs climate change scenario. Flooding orginates from the		change on flooding at the site.			4.4 and 4.5 for		
*The +35% Climate Change Allo						n corner, surrounding the site.					Develop	a Fl
Parameter	FZ3b	ended) - Hog FZ3a	*FZ3a+CC	Units	• Figure 1 and Thames.	d 2 show the fluvial risk from the River					• Site user	's sh
Speed of inundation	N/A	N/A	13.25	Hrs		e due to update River Thames model*					Service.	
Min. Depth	N/A	N/A	0	m								
Max. Depth	N/A	N/A N/A	1.45	m								
Max. Velocity	N/A	N/A N/A	0.98	m/s								
Max. Hazard	N/A	N/A	1.73	N/A	Eigure 1 - F	Fluvial Flood Depth Map	Eiguro 2 El	uvial Elect	d Hazard Ma	1		
IVIAA. 1 IdZdI U					Figure 1 - F		rigure 2 - Fi			<u>h</u>		
Duration of Flood	N/A	N/A	> 14.5	Hrs								

Risk Assessment					
Parameter	1 in 30	1 in 100	1 in 1000*	Units	
Min. Depth	0	0	0	m	
Max. Depth	0	0.60-0.90	0.90-1.20	m	
Max. Velocity	0	0.50-1.00	1.00-2.00	m/s	
Max. Hazard	0	1.25-2.00	1.25-2.00	N/A	

*The 1 in 1000-year flood extent represents the potential climate change adjusted impact of current risk **Description of Flood Mechanism**

• A very small section in the south east of the site is at risk of surface water flooding.

• Climate change is predicted to slightly increase the flood extent. The maximum depth and velocity is also predicted to increase in the climate change scenario.

Site Access / Egress

Site access / egress routes should be directed towards the north eastern edge of the site along Skerne Road, where there is a lower risk of surface water flooding.

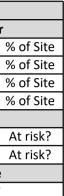
Figure 3 - RoFSW Flood Depth Map

Mitigation - Flood Risk Requirements

See SFRA - Level 2 Report mitigation requirement numbers 4.2, 4.3, 4.5 and 4.6 for additional development stipulations.

Figure 4 - RoFSW Flood Hazard Map





Flood Defences

The site is not in an area benefitting from flood defences.

Flood Warning Area

The EA Flood Warning Service is available at this site.

Mitigation / FRA Requirements

erable' developments should be directed away stern boundary of the site (FZ3a).

nents with 'Low Vulnerable' or water compatible mitted in the western side of the site (FZ3a). ned basement dwellings and bedrooms are not

FZ2. See SFRA Level 2 Report mitigation

number 4.10 for additional basement stipulations.

evel 2 Report mitigation requirement numbers 4.2, or further development stipulations.

Flood Emergency and Evacuation Plan for the site. should be signed up to the EA's Flood Warning

Mitigation - Surface Water Drainage

• A Kingston SuDS Proforma must be submitted with the planning application. • Developments should apply the Sustainable Drainage Hierarchy set out in Policy SI13 of the London Plan.

• Ground investigations are required to confirm whether infiltration based SuDS are suitable.

SEWER	GROUNDWATER	
Risk Assessment	Risk Assessment	
 The site is served by separate surface water and foul sewer 	 The entire site is classified as having 50-75% susceptibility to groundwater 	 The site is at risk from a n
networks.	flooding.	Junction, Stain Hill, Sunnysi
• The site falls within a postcode area where there are 65 reported	• The is underlain by London Clay bedrock with Alluvium superficial deposits in	Staines (North & South), Wa
flood incidents from sewer flooding.	the north western half of the site and Langley Silt deposits in the south-east.	reservoirs.
		 If any of these reservoirs I
		capacity, the site will be at
Figure 5 - Thames Water Sewer Flood Map	Figure 6 - Areas Susceptible to Groundwater Flooding Map	Figure 7 - Outline Reservoir
Mitigation Requirements	Mitigation Requirements	
 Applicant must consult with TWUL to confirm if the site has 	Applicant should carry out a screening study (as a minimum) to establish if	Propose appropriate and pro
historically flooded.	there are any subterranean flood risk issues that may require further	 A suitable emergency respon warning system in the event or
• If historic flooding has occurred, the applicant must show how this	investigation.	Local Authority Emergency P
risk will be managed for the lifetime of the development.	 If there is a potential impact, mitigation actions must be proposed. 	failure emergency and evacuat
	Must be prepared by a chartered professional or specialist.	
	PLANNING CONSIDERATIONS	
	Safety of Development	
A. Can the development be future proofed for climate change considerat		
/ biodiversity benefits as per London Plan Policy SI 13.		
 See SFRA - Level 2 Report mitigation requirement number 4.5 for competing of the development land use change and The development land use is changing from the 'Less Vulnerable' to 'More the the the the the the the the the th	nd will flood risk increase? The Vulnerable' classification, as the site is proposed to be used for residential purposes. The space. This offers an opportunity to improve flood attenuation through new development adge of the site. Comply with Policy DM 4 in Kingston's Core Strategy.	ıt.
 See SFRA - Level 2 Report mitigation requirement number 4.5 for competing the cumulative impact of the development land use change and the development land use is changing from the 'Less Vulnerable' to 'More The site is currently a brownfield site with hardstanding areas and no gree D. How can the development reduce risk overall? Restricting development to lower risk areas i.e. away from the western ere Include SuDS to manage surface water runoff and reduce runoff rates to 	ad will flood risk increase? The Vulnerable' classification, as the site is proposed to be used for residential purposes. This offers an opportunity to improve flood attenuation through new development adge of the site. Comply with Policy DM 4 in Kingston's Core Strategy. The Strategy of the site.	ıt.
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 See SFRA - Level 2 Report mitigation requirement number 4.5 for competing the state of the complete state of the development land use change and the development land use is changing from the 'Less Vulnerable' to 'More'. The site is currently a brownfield site with hardstanding areas and no gree. D. How can the development reduce risk overall? Restricting development to lower risk areas i.e. away from the western et a lnclude SuDS to manage surface water runoff and reduce runoff rates to By complying with SFRA - Level 2 Report mitigation requirement number E. Will development require a flood risk permit /watercourse consent? No. The site is not within 8m of a Main River or 5m of an Ordinary Water F. Is the Exception Test required for 'More Vulnerable' classification located 	nd will flood risk increase? re Vulnerable' classification, as the site is proposed to be used for residential purposes. teen space. This offers an opportunity to improve flood attenuation through new development rdge of the site. comply with Policy DM 4 in Kingston's Core Strategy. s 4.2, 4.4 and 4.5. course. d within FZ3a i.e. the western border of the site. lifetime without increasing flood risk elsewhere (see questions A, B, and C). The site could also	
 See SFRA - Level 2 Report mitigation requirement number 4.5 for compe C. What is the cumulative impact of the development land use change an The development land use is changing from the 'Less Vulnerable' to 'Mor The site is currently a brownfield site with hardstanding areas and no gre D. How can the development reduce risk overall? Restricting development to lower risk areas i.e. away from the western e Include SuDS to manage surface water runoff and reduce runoff rates to By complying with SFRA - Level 2 Report mitigation requirement number E. Will development require a flood risk permit /watercourse consent? No. The site is not within 8m of a Main River or 5m of an Ordinary Water The Exception Test required for 'More Vulnerable' classification located The Exception Test can be passed by making the site safe throughout its measures implemented (see Mitigation - Surface Water Drainage and Mitig G. What are the delivery challenges for developing this site in terms of th Due to the high flood levels predicted for the 1 in 100 year + CC event, and 	Ind will flood risk increase? The Vulnerable' classification, as the site is proposed to be used for residential purposes. This offers an opportunity to improve flood attenuation through new development Endge of the site. Comply with Policy DM 4 in Kingston's Core Strategy. Is 4.2, 4.4 and 4.5. Course. Id within FZ3a i.e. the western border of the site. Infection of the site. Infection of the site. Infection of the site. Course. Infection of the site.	so reduce flood risk overall with ap



ARTIFICIAL

Risk Assessment

a number of reservoirs including the Hampton (Grand yside), Island Barn, Queen Elizabeth II, Queen Mother, Walton (Bessborough & Knight), and Wraysbury

rs breach on a wet day i.e. when the local rivers are at at risk of flooding.

oir Flood Map

Mitigation Requirements

proportionate risk management measures.

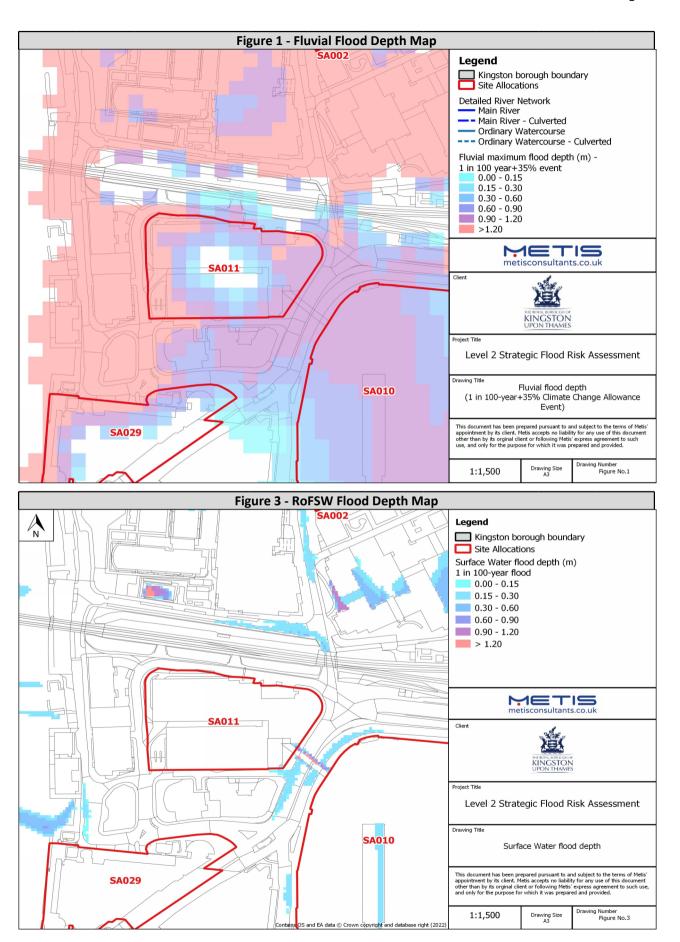
ponse plan should be put in place, including an emergency It of a reservoir flooding incident.

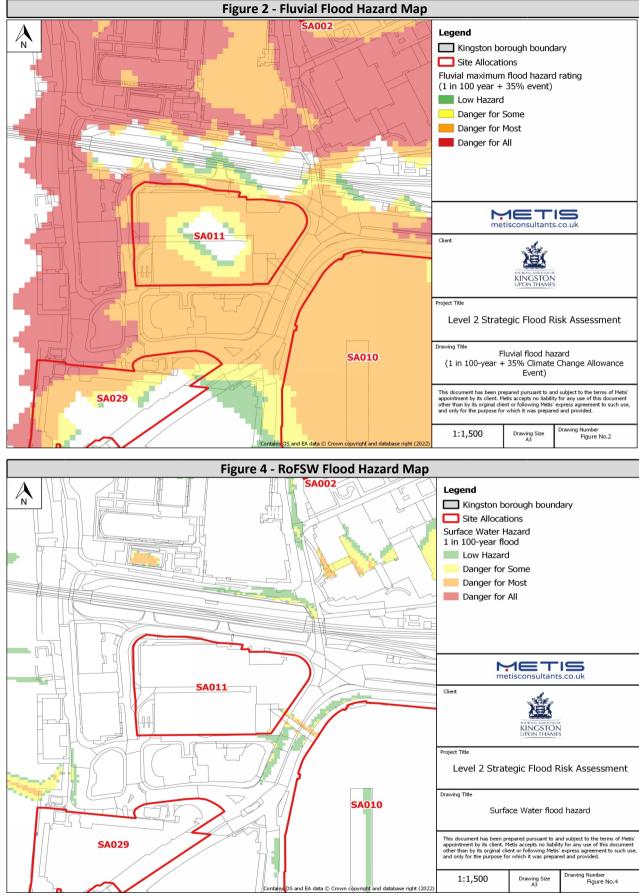
cy Planning Officers must be consulted to create a reservoir cuation plan.

cture should be prioritised to provide wider ecological

appropriate SuDS and flood storage compensation

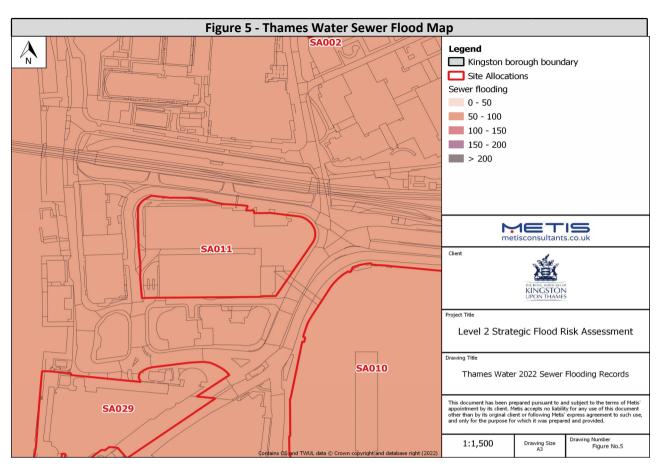
ement number 4.5).

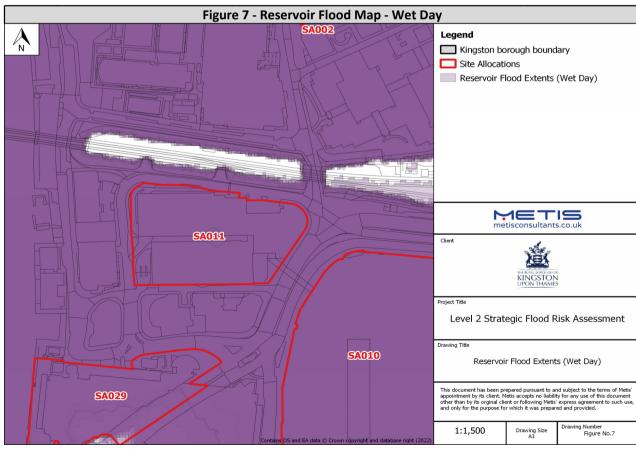


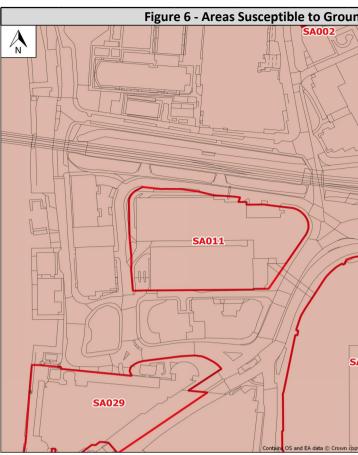














nd	ndwater Flooding Map						
		Legend Kingston bo Site Allocat Areas Susceptibl 25% > = 25% > = 50% < > = 75%	le to Groundv 50%	,			
\geq	HI	metis		nts.co.uk			
		Client	THE RIVAL BOROUCH O KINGSTON UPON THAMES	1			
		Project Title Level 2 Strate	egic Flood R	isk Assessment	t		
SAC	10	Drawing Title Areas Susceptible to Groundwater Flooding					
		This document has been prepared pursuant to and subject to the terms of Metis' appointment by its client. Metis accepts no liability for any use of this document other than by its orginal client or following Metis' express agreement to such use, and only for the purpose for which it was prepared and provided.					
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